

NOTA CIENTÍFICA

New phytotelmic habitat of *Metriocnemus eryngiotelmatus* (Diptera: Chironomidae)

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Un nuevo hábitat de fitotelmata para *Metriocnemus eryngiotelmatus* (Diptera: Chironomidae)

■ **RESUMEN.** Esta es la primera cita de *Metriocnemus eryngiotelmatus* Donato & Paggi 2005, asociado al agua almacenada en las axilas de *Dipsacus fullonum* L.

PALABRAS CLAVE. Argentina. *Dipsacus fullonum*. *Metriocnemus eryngiotelmatus*. Fitotelmata.

■ **ABSTRACT.** This is the first report of the non-biting midge *Metriocnemus eryngiotelmatus* Donato & Paggi 2005 associated to the impounded water of *Dipsacus fullonum* L. plants.

KEY WORDS. Argentina. *Dipsacus fullonum*. *Metriocnemus eryngiotelmatus*. Phytotelmata.

Species of the cosmopolitan midge *Metriocnemus* van der Wulp (Diptera: Chironomidae: Orthocladiinae) have been found in a wide range of aquatic habitats, showing one of the broadest distributions for a dipteran genus (Saether, 1989). Phytotelmata are included among the aquatic habitats in which *Metriocnemus* species develop.

Phytotelmata are structures present in terrestrial plants such as modified leaves, leaf axils, flowers, stem holes or depressions, open fruits and fallen leaves, which allow water to impound (Fish, 1983). Phytotelmata have a world-wide distribution but are more common in tropical areas, where plant diversity and rainfall are higher. Impounded water provides a suitable habitat for the development of numerous chironomid species and other

Diptera (Donato & Paggi, 2005). The water bodies impounded by phytotelmata can be regarded as aquatic microcosms (Epler & Janetzky, 1999). Therefore, phytotelmata have been used in ecological studies such as community composition, intra and interspecific interactions, trophic webs, dispersion, colonization, influence of biotic and abiotic factors on the biota, and have been also used in studies of insect-plant co-evolution (Buckley *et al.*, 2004). Moreover, the importance of phytotelmata is that they may act as reservoirs for breeding of some insect vectors (Pajot, 1983).

Metriocnemus is the most common Chironomidae genus inhabiting phytotelmata. Immature stages of species of *Metriocnemus* have been found growing in

the impounded water of different plants such as *Eryngium* L. spp. (Apiaceae), *Dipsacus* L. spp. (Dipsacaceae) spp, the pitcher plant *Sarracenia purpurea* L. (Sarraceniaceae), *Scirpus selvaticus* L. (Cyperaceae), *Lobelia satimae* R.E. Fries & T.C.E Fries (Campanulaceae), *Senecio brassicae* R.E. Fries (Asteraceae), wild bananas (Musaceae), some bromeliad species, and in the water-filled tree holes of *Fagus sylvaticus* L. (Fagaceae) (Pinder, 1995).

Phytotelm-inhabiting insects exhibit different degrees of host-plant specificity, being restricted in some cases to a single species of plant. Female *Metriocnemus knabi* Coq have a high degree of specificity and oviposit in water impounded by the pitcher plant *S. purpurea*, which provides an adequate aquatic habitat for the developing larvae (Nastace *et al.*, 1995). Other phytotelm-inhabiting insects use several different species of host plants which have similar structures (Fish, 1983).

Metriocnemus eryngiotelmatus Donato & Paggi was cited as living specifically in the impounded water of *Eryngium pandalifolium* Chamisso & Schlechtendal and *E. cabrerar* Pontiroli plants (Apiaceae) from different parts of Argentina and Uruguay (Donato & Paggi, 2005). *Eryngium* L. is a widespread genus of perennial, rhizomatous herbs, including some species that capture and retain water in their leaf axils. The water impounded by *Eryngium* plants derives from rainfall, condensation or overflow from the surrounding terrain.

In the present study we expand the knowledge of the habitat range of *M. eryngiotelmatus* to phytotelmata habitats in plants other than *Eryngium* species.

The study was conducted at the "Integral Natural Reserve" in Punta Lara, Buenos Aires Province, Argentina. This Reserve is included in the biogeographic Pampeana Province of the Neotropical Region, and it is the southernmost relict of the subtropical forest (Cabrera, 1976). Samples were collected from water impounded in the weed *Dipsacus fullonum* L., which is an annual herb. Their basal leaves retain and accumulate water in which different insect species inhabit. This

plant is native from Europe and Asia and was introduced to many countries, including Argentina. In Argentina species of *Dipsacus* gradually invaded several provinces and currently this plant is considered a pest (Cabrera & Zardini, 1978). *Metriocnemus* larvae have previously been found in impounded water in *Dipsacus* spp. from the Holarctic region (Pinder, 1995).

Samples were obtained with hand pipettes from water retained in *D. fullonum* axils and fixed in 70% ethanol. Immature chironomids collected from these plants were slide-mounted and examined at high magnification with a compound microscope.

As a result of this study, we have found immature stages of *Metriocnemus eryngiotelmatus* living in the impounded water of *Dipsacus fullonum*. This, expands the range of *M. eryngiotelmatus* to a new host-plant. However, we still do not know how frequently *M. eryngiotelmatus* oviposits in this plant compared with the use of *Eryngium cabrerar* and *E. pandalifolium* as oviposition sites, or if the presence of this midge in *D. fulonum* is accidental. Future studies will elucidate the ecological aspects of this plant-insect association.

Material examined: larvae and pupae, Punta Lara (34° 51' 53" S, 57° 52' 23" W), Buenos Aires, Argentina, 20-X-2005, R. Campos col., M. Donato, det.

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